

## Statistical detection of the hidden distortions in diffusive spectra

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### Abstract

A new methodology for the statistical detection of an unknown substance, based on the transformation of fluctuations obtained from initial spectrograms into ordered quantized histograms (QHs) was proposed. The QHs obtained help to detect, statistically, the presence of unknown substances using the characteristics of conventional quantum spectra adopted from quantum mechanics. It was found that application of the new methodology to near infrared (NIR) spectra obtained for petrol of octane ratings 95 and 98, and their mixtures, confirms the effectiveness and sensitivity of this method.

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